Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

Claim 1 (Original): A computer executable process for adjusting traces routed through a routing area of a depiction of an electronics system, said process comprising:

receiving computer readable data comprising parameters defining said routing space, said traces, and obstacles within said routing space, each said trace comprising a plurality of interconnected nodes;

determining spacings between adjacent nodes of each trace, and adjusting a number of nodes in each trace based on said spacings;

assigning forces to nodes of each trace based on a proximity of said nodes to objects within said routing area, said objects including at least one of an obstacle and other nodes; and

moving said nodes in accordance with said forces.

Claim 2 (New): A method for adjusting a trace defined by sequential nodes through a routing space, said trace defining a path between first and second end points, said method comprising:

assigning forces to ones of said nodes; and

moving within said routing space positions of selected ones of said nodes in accordance with said forces and thereby changing said path between said first and second end points.

Claim 3 (New): The method of claim 2, wherein::

each said force comprises a direction and a magnitude, and

said moving step comprises moving each said node in said direction of said force assigned to said node a distance that corresponds to said magnitude of said force assigned to said node.

Claim 4 (New): The method of claim 2, wherein:

said assigning step comprises assigning a plurality of forces to each of said ones of said nodes; and

said moving step comprises moving each said node in accordance with a sum of said plurality of forces assigned to said node.

Claim 5 (New): The method of claim 2, wherein said assigning step comprises:

identifying sequential pairs of said nodes; and

for each said identified pair of nodes, assigning a force to each node in said pair that tends to move said node towards said other node in said pair.

Claim 6 (New): The method of claim 5, wherein said moving step comprises:

summing forces assigned to a node; and

moving said node in accordance with said sum of said forces assigned to said node.

Claim 7 (New): The method of claim 6, wherein said moving step comprises:

identifying nodes that are to remain in place; and

not moving said identified nodes.

Claim 8 (New): The method of claim 7, wherein nodes that are to remain in place include nodes defining said first and second end points of said trace.

Claim 9 (New): The method of claim 8 further comprising:

after said moving step, deleting said forces assigned to said ones of said nodes; and

repeating said assigning step and said moving step.

Claim 10 (New): The method of claim 9, wherein said trace represents a conductor that electrically connects a first electronic element and a second electronic element in an electronics system.

Claim 11 (New): The method of claim 2, wherein said assigning step comprises assigning a force to each of said nodes that is disposed within a predetermined distance of an obstacle through which said trace is not allowed to pass.

Claim 12 (New): The method of claim 11, wherein:

a magnitude of said force assigned to each of said nodes corresponds to a distance of said node from said obstacle,

and a direction of said force assigned to each of said nodes is away from said obstacle.

Claim 13 (New): The method of claim 12, wherein said magnitude of said force is greatest if said node is disposed on said obstacle, and said magnitude decreases with distance from said obstacle.

Claim 14 (New): The method of claim 2, wherein said assigning step comprises assigning a force to each of said nodes that is disposed within a predetermined distance of a node that defines a second trace.

Claim 15 (New): The method of claim 14, wherein a direction of said force assigned to each of said nodes is away from said node of said second trace.

Claim 16 (New): The method of claim 2, wherein said assigning step comprises:

identifying sequential pairs of said nodes;

for each said identified pair of nodes, assigning a first force to each node in said pair that tends to move said node towards said other node in said pair; and

assigning a second force to each of said nodes that is disposed within a predetermined distance of an obstacle through which said trace is not allowed to pass, said second force tending to move said node away from said obstacle.

Claim 17 (New): The method of claim 16, wherein said moving step comprises:

summing forces assigned to a node; and

moving said node in accordance with said sum of said forces assigned to said node.

Claim 18 (New): The method of claim 17, wherein said moving step comprises:

identifying nodes that are to remain in place; and

not moving said identified nodes.

Claim 19 (New): The method of claim 18, wherein nodes that are to remain in place include nodes defining said first and second end points of said trace.

Claim 20 (New): The method of claim 2 further comprising reconfiguring said nodes.

Claim 21 (New): The method of claim 20, wherein said reconfiguring step comprises adding a new node between a pair of said nodes that are separated by more than a threshold distance.

Claim 22 (New): The method of claim 20, wherein said reconfiguring step comprises deleting a node that is disposed less than a threshold distance from an adjacent node.

Claim 23 (New): The method of claim 20, wherein said reconfiguring step comprises deleting one or more nodes along a straight portion of said trace.

Claim 24 (New): The method of claim 2, wherein said method is executed in software operating on a computer.

Claim 25 (New): The method of claim 24, wherein said trace and said nodes are represented by computer-readable digital data.

Claim 26 (New): The method of claim 2, wherein said assigned forces comprise vectors with a direction and magnitude that tends to straighten said trace when said ones of said nodes to which said forces are assigned are moved.

Claim 27 (New): The method of claim 2, wherein said assigned forces comprise vectors with a direction and magnitude that tends to smooth said trace when said ones of said nodes to which said forces are assigned are moved.

Claim 28 (New): The method of claim 2, wherein said assigned forces comprise vectors with a direction and magnitude that tends to smooth, when said ones of said nodes to which said forces are assigned are moved, said trace around obstacles through which said trace is not allowed to pass.

Claim 29 (New): The method of claim 2, wherein said assigned forces comprise vectors with a direction and magnitude that tends to move at least a portion of said trace away from an obstacle through which said trace is not allowed to pass.

Claim 30 (New): The method of claim 2, wherein said assigned forces comprise vectors with a direction and magnitude that tends to move at least a portion of said trace away from another second trace.

Claim 31 (New): The method of claim 2, wherein:

said trace crosses another trace, and

said assigned forces comprise vectors with a direction and magnitude that tends to move at least a portion of said trace such that said trace and said other trace become uncrossed.

Claim 32 (New): A method of uncrossing a first trace and a second trace, wherein said first trace is defined by a plurality of first sequential nodes and said second trace is defined by a plurality of second sequential nodes, said method comprising:

determining which of said first trace and said second trace has a nearest end to a crossing of said first trace and said second trace, and selecting the other trace;

assigning forces to ones of the nodes of said selected trace, wherein said forces tend to move said nodes towards said nearest end; and

moving said ones of said nodes in accordance with said forces.

Claim 33 (New): The method of claim 32, wherein said ones of said nodes to which said forces are assigned are nodes that are within a threshold distance of said crossing of said first trace and said second trace.

Claim 34 (New): The method of claim 32, wherein said ones of said nodes to which said forces are assigned are a predetermined number of nodes on either side of said crossing of said first trace and said second trace.

Claim 35 (New): The method of claim 32, further comprising repeating said assigning step and said moving step until said first trace and said second trace are uncrossed.

Claim 36 (New): The method of claim 32, further comprising repeating said assigning step and said moving step until said nodes to which said forces are assigned move past said nearest end.

Claim 37 (New): The method of 32, wherein:

said first trace represents a first conductor that electrically connects a first electronic element and a second electronic element in an electronics system: and

said second trace represents a second conductor that electrically connects a third electronic element and a fourth electronic element in said electronics system.

Claim 38 (New): The method of claim 32, wherein said method is executed in software operating on a computer.

Claim 39 (New): The method of claim 38, wherein said first trace, said first nodes, said second trace, and said second nodes are represented by computer-readable digital data.